

SUMMARY OF THE INVENTION

AI According to the invention, a method for adjusting a resonant cavity uses an energy beam on an intracavity optical path and modifies an optical length until a free spectral range equals a rational fraction of a specified frequency interval. The specified interval may be the separation of DWDM channels in a telecommunications application. The energy beam may be an ultraviolet beam and the optical length may be modified by a light induced refractive index change including a chemical alteration in the material such as crosslinking a polymer or changing the electronic environment of a dopant. The laser may be operated during adjustment to determine its free spectral range. The location of intracavity exposure may be changed during cavity adjustment. Alternative techniques include removal of intracavity material by laser ablation and deposition of intracavity material by evaporation using a mask for spatial definition. The laser cavity optical length may be designed to differ from the desired optical length by an amount that can be corrected by application of a single adjusting technique. Use of the energy beam may continue until a subset of longitudinal mode frequencies coincides with assigned frequency channels. The resonant cavity may be a laser containing an amplifier in the resonant cavity and coupled to an output waveguide so that the laser may be tuned to operate on one of the channels separated by the frequency interval.
